Iowa Cancer Health Disparities

October 2008

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Special thanks to the disparities workgroup for the creation of this companion guide.

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The Face of Cancer Health Disparities in Iowa

In 2008, 6,300 Iowans are expected to die from cancer; another 16,000 are estimated to be diagnosed with the disease.[1] Much is already known regarding prevention, detection and treatment of cancer, yet these advances do not reach everyone. Screening, treatment and survival rates often differ among population groups. In an attempt to understand and address these differences, recent research has begun to specifically define these population groups and question the root causes of inequalities.

Disparities Defined

For the purpose of this report, cancer health disparities/inequalities will be defined as, *differences in the incidence, prevalence, mortality and burden of cancer among specific population groups*. These population groups may be characterized by age, disability, education, ethnicity, gender, geographic location, income or race. People who are poor, lack health insurance, and are medically underserved — regardless of ethnic and racial background — often bear a greater burden of disease than the general population.

Complex and interrelated factors contribute to the observed disparities in cancer incidence and mortality among racial, ethnic and underserved groups. Common factors are associated with a lack of health care insurance and low socioeconomic status (SES).

According to the National Cancer Institute's Minority Awareness packet, SES is most often based on a person's income, education level, occupation and other factors, such as social status in the community and where he or she lives. Studies have found that SES, more than race or ethnicity, predicts the likelihood of an individual's or a group's access to education, certain occupations, health insurance and living conditions including conditions where exposure to environmental toxins is most common — all of which are associated with the risk of developing and the probability of surviving cancer. In particular, SES appears to play a major role in influencing the prevalence of behavioral risk factors for cancer (e.g., tobacco smoking, physical inactivity, obesity, and excessive alcohol intake), as well as adherence to cancer screening guidelines.

Cancer Health Disparities in Iowa

A close look at cancer incidence and mortality statistics reveals that certain groups in Iowa and across the country suffer disproportionately from cancer and its associated effects, including premature death.

In 2002, the Iowa Legislature commissioned a report on the burden of cancer in Iowa. The Iowa Department of Public Health and the Comprehensive Cancer Control Study Committee worked throughout that year to produce *The Face of Cancer in Iowa* report.

In 2001, the Iowa Consortium for Comprehensive Cancer Control (ICCCC) evolved out of the Study Committee. The Consortium is comprised of more than 100 individuals representing 50 agencies and organizations across the state. Subsequently, the Consortium created a comprehensive, statewide cancer plan to address critical cancer problems in Iowa, *Changing the Face of Cancer in Iowa: A State Plan for 2003-2005* and in 2006 updated the plan, *Reducing the Burden of Cancer in Iowa: A Strategic Plan for 2006-2011*. While the plan is designed to address disparities while reaching the entire state population, it specifically calls for 'developing a companion document to define and address disparities in the state of Iowa.'

A task force was formed in spring of 2008 to create the companion document. The intent was to define and increase awareness about health disparities in Iowa, especially among health care providers, cancer stakeholders, and policymakers. This report is intended for use in conjunction with *Reducing the Burden of Cancer in Iowa: A Strategic Plan for 2006-2011*. For the purpose of the companion document, disparities are discussed within the following categories:

- Age
- Gender
- Race
- Education
- Geographic Location
- Income

Studies have found that SES, more than race or ethnicity, predicts the likelihood of an individual's or a group's access to education, certain occupations, health insurance and living conditions including conditions where exposure to environmental toxins is most common — all of which are associated with the risk of developing and the probability of surviving cancer.

Though cancer health disparities may exist across other categories, this guide focuses on those categories for which data are available for analyses. Most data in this report compares white and African American Iowans because the most current data are available for these two populations. While over 100 types of cancer exist, the most common cancers diagnosed in Iowa men and women are prostate and breast, respectively. This is followed by lung and colorectal cancer in both men and women. Screening tests are available for breast, colorectal, cervical and prostate cancer. With the focus of detecting cancer early, the Strategic Plan focuses on cancer sites where screening tests can improve cancer outcomes. For this companion document, the cancers of interest are similar – breast, colorectal, lung, prostate and cervix.

It is the hope of this taskforce that this guide spurs dialogue, research and action. This companion guide is not meant to be the end of our look at disparities, but rather the beginning.

In 2008, 6,300 Iowans are expected to die from cancer; another 16,000 are estimated to be diagnosed with the disease.

All Cancer Sites

The State Health Registry of Iowa estimates 16,000 new cancer cases will be diagnosed in 2008 and 6,300 Iowans will die from cancer in 2008.[1] Cancer is the second leading cause of death in Iowa. Cancer is not just one disease but many diseases. There are more than 100 different types of cancer. Most cancers are named for the organ or type of cell in which they start. This section of the report refers to statistics for all cancer sites combined.

Age

Cancer occurs in all age groups, but it occurs most often among older age groups. Sixty percent of new cancers occur in persons age 65 and older.[1] Of all cancer deaths, over 70% occur in this group.[1] Age is especially important in Iowa where 14.6% of residents are age 65 and older, higher than the national average of 12.4%.[2]

Education

Education level is an important factor in cancer mortality rates. African American men age 50-64 who have less than 12 years of education are dying from cancer at rates over two times that of African American men with more than 12 years of education.[1] Similar results are seen in white males.

Educational differences do not play as large a role for Iowa women in determining cancer mortality, but as education increases, cancer mortality rates decrease for both African American and white Iowa women. Higher education levels are also associated with higher levels of cancer screening.[3]


Figure 1. Incidence and Mortality Rates for All Cancer Sites by Age, Iowa, 2001-2005
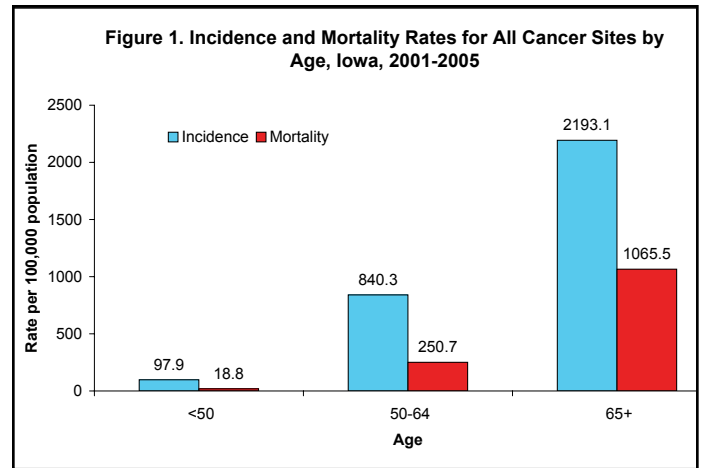
Rates are age-adjusted to the 2000 US population
Source: State Health Registry of Iowa

Race

Race, like education, is a determining factor in predicting cancer mortality. African American males, regardless of education, have higher mortality rates than their white counterparts.[1]

As shown in Table 1 within the MSA counties, African Americans are diagnosed with cancer at rates 10% higher than whites and die from cancer at rates nearly one and a half times that of white Iowans. Available data show that African Americans die at higher rates than any other racial group in Iowa. American Indians/Alaska Natives have the highest rates of cancer incidence in Iowa, although small numbers in this population make this rate unstable.[6] Low representation of American Indians in Iowa prevents cancer mortality rates from being released.

Figure 2. Mortality Rates for All Cancer Sites by Educational Attainment, Race and Sex, Iowa, 2001-2005
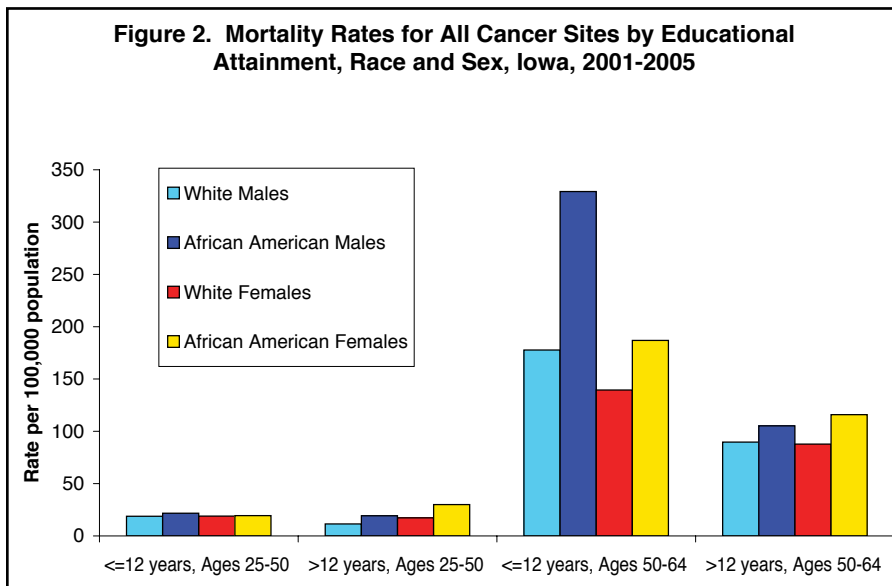
Rates are age-adjusted to the 2000 US population
Source: State Health Registry of Iowa

Gender

Cancer does not affect men and women at the same rate. In Iowa, men are diagnosed with cancer at rates 30 percent higher than in women.[1] For every 2 women that die from cancer in Iowa, 3 men die.[1] African American men are dying from cancer at a rate of more than one and half times that of African American women.[1]

Geographic Location

It is known that most of the cancer cases among racial minorities occur in the state's larger cities, where most of the state's minority citizens live.[1] These metropolitan areas are located within Black Hawk, Linn, Polk and Scott counties.

Income

Income is linked to risk reduction behaviors. Cancer risk reduction behaviors tend to increase with higher income levels.

Table 1. Incidence and Mortality Rates for All Cancer Sites, Iowa, 2001-2005

Select Population	Incidence Rate	# of New Cases	Mortality Rate	# of Deaths
Aged <50	97.9	10000	18.8	1944
Aged 50-64	840.3	20488	250.7	6116
Aged 65+	2193.1	47953	1065.5	24079
Males	552.1	40188	231.3	16609
Females	422.6	38253	156.1	15530
Non-MSA counties	472.4	40658	184.9	17094
MSA counties	475.0	37783	187.4	15045
White	467.6	35906	186.5	14540
African American	524.1	885	271.4	414

Rates are age-adjusted to the 2000 US population
Source: State Health Registry of Iowa
MSA: Metropolitan Statistical Area
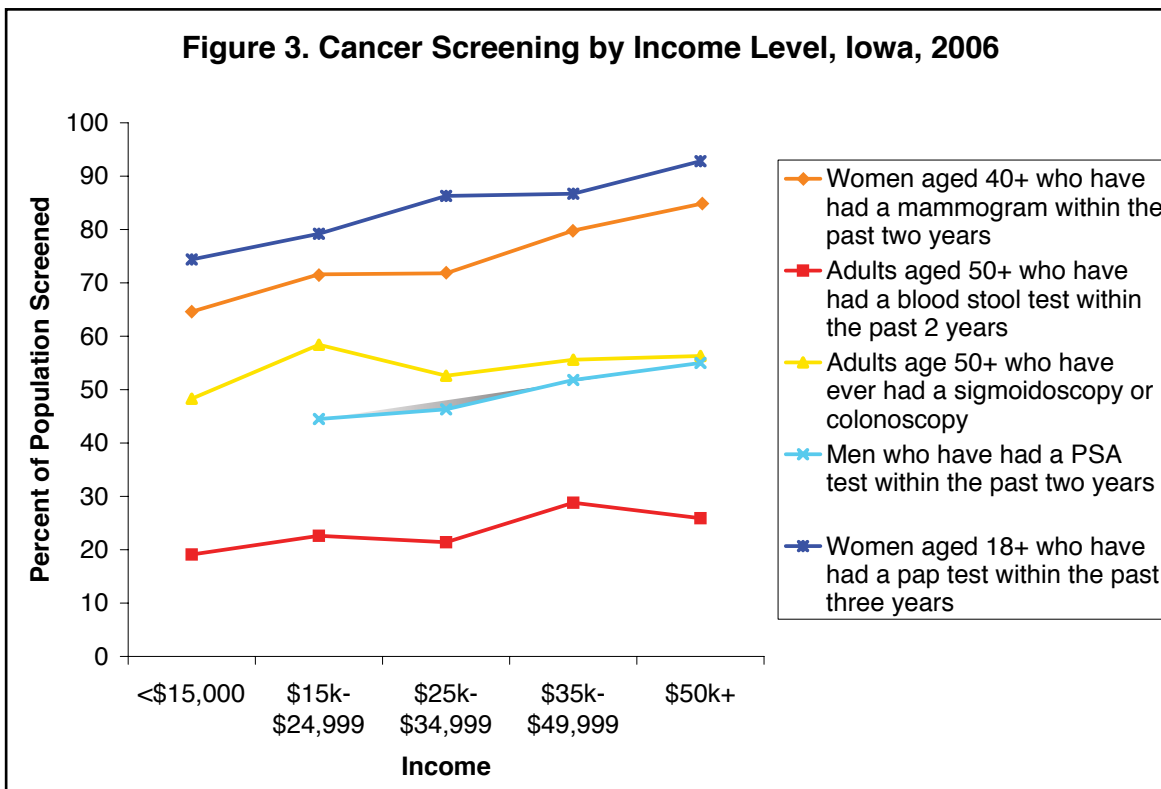
Rates are age-adjusted to the 2000 US population
Source: Behavioral Risk Factor Surveillance Survey
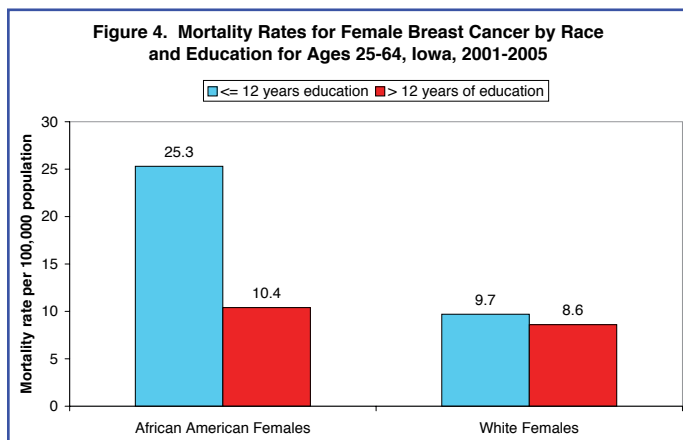
Female Breast Cancer

Breast cancer is the most commonly diagnosed cancer in Iowa women, and is the second most common cause of cancer deaths. Much can be done to reduce the burden of breast cancer through early detection using mammography screening and clinical breast exams. Women in their 40s and older should have mammograms every 1 to 2 years. Women who are younger than 40 and have risk factors for breast cancer should ask their health care provider whether to have mammograms earlier and how often to have them.

Age

Although women of all ages are at risk of breast cancer, women over the age of 50 years are at greatest risk. Data indicate that two-thirds of all female breast cancer mortality in Iowa between 2001 and 2005 occurred among women age 65 and older.[1] Even though women age 65+ die at higher rates of breast cancer, they are the least likely to be screened among women older than 50.[3]

Education

African American women with less than 12 years of education are two and a half times more likely to die from breast cancer than their white counterparts with the same education, as shown in Figure 4.[1] No other apparent trends are visible within the education data.

Figure 4. Mortality Rates for Female Breast Cancer by Race and Education for Ages 25-64, Iowa, 2001-2005

Rates are age-adjusted to the 2000 US population
Source: State Health Registry of Iowa

Race

Even though African American women are less likely to be diagnosed with breast cancer than white women, African American women die from breast cancer at one and a half times the rate of white women.[1]

American Indian women are diagnosed with the highest rates of breast cancer than any other ethnic or racial group.[1] Currently no data on breast cancer mortality in American Indian women are available in Iowa due to small numbers.

Table 2. Incidence and Mortality Rates for Female Breast Cancer, Iowa, 2001-2005

Select Population	Incidence Rate	# of New Cases	Mortality Rate	# of Deaths
Aged <40	12.8	449	1.2	42
Aged 40-64	211.5	5078	29.5	715
Aged 65+	426.3	5439	106.7	1491
Non-MSA counties	122.4	5453	23.6	1204
MSA counties	128.1	5513	22.6	1044
White	128.6	5331	22.5	1007
African American	101.7	100	33.6	32

Rates are age-adjusted to the 2000 US population
Source: State Health Registry of Iowa

Income

Mammography rates for women increase as income increases.[3] Women most likely to get a mammogram are those who have an income greater than $35,000 and are college graduates.[3]

Incidence Rate for Breast Cancer, Iowa, 2000-2005
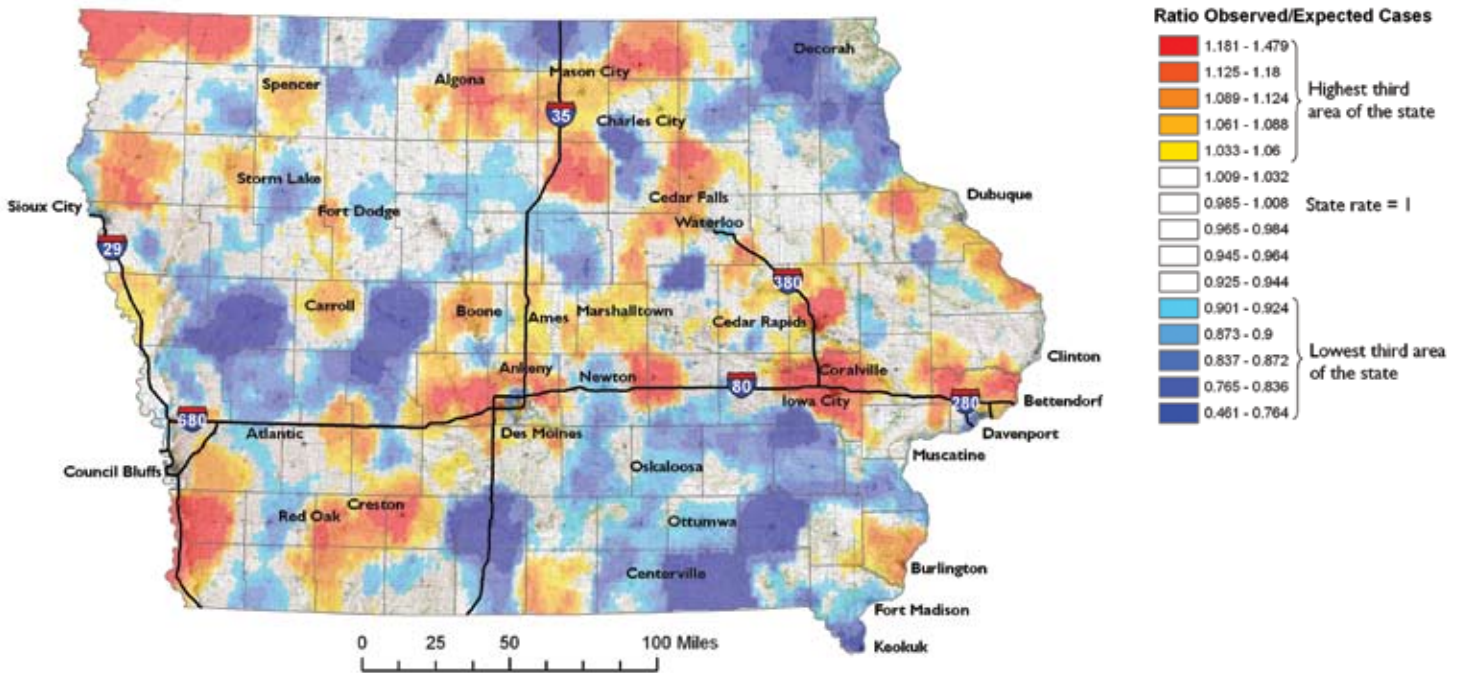
Ratio Observed/Expected Cases

	Ratio	
■ (red)	1.181 - 1.479	Highest third area of the state
■ (orange-red)	1.125 - 1.18	
■ (orange)	1.089 - 1.124	
■ (light orange)	1.061 - 1.088	
■ (yellow)	1.033 - 1.06	
□	1.009 - 1.032	
□	0.985 - 1.008	State rate = 1
□	0.965 - 0.984	
□	0.945 - 0.964	
□	0.925 - 0.944	
■ (light blue)	0.901 - 0.924	
■ (blue)	0.873 - 0.9	Lowest third area of the state
■ (blue)	0.837 - 0.872	
■ (dark blue)	0.765 - 0.836	
■ (dark blue)	0.461 - 0.764	

0   25   50   100 Miles

■

Breast cancer is the most commonly diagnosed cancer in Iowa women, and is the second most common cause of cancer deaths.

Geographic Location

Rates of breast cancer incidence vary throughout the state, with high rates often centered on particular metropolitan areas, including Des Moines.

Late-stage breast cancer diagnoses are well defined with higher than normal rates in central Iowa and in parts of northwest Iowa, east central Iowa and the Des Moines area.

Two large areas of higher than average breast cancer mortality exist in northwest Iowa around the town of Spencer and the southwest corner of the state.

Late Stage Rate for Breast Cancer, Iowa, 2000-2005

Ratio Observed/Expected Late-Stage Cases

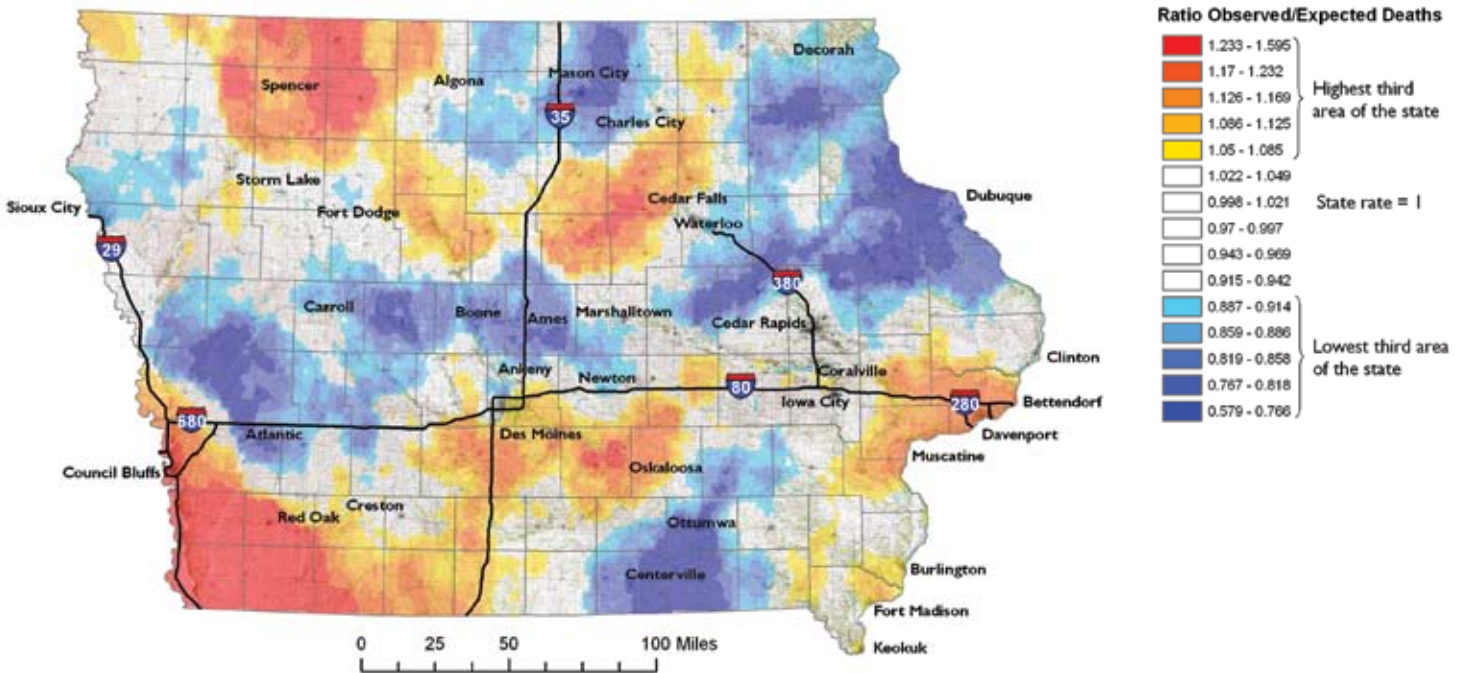| Color	Range	Group
Red	1.155 - 1.415	
	1.102 - 1.154	Highest third area of the state
Orange	1.07 - 1.101	
	1.044 - 1.069	
Yellow	1.02 - 1.043	
White	1 - 1.019	State rate = 1
	0.982 - 0.999	
	0.962 - 0.981	
	0.935 - 0.961	
	0.912 - 0.934	
Light blue	0.888 - 0.911	
	0.859 - 0.887	Lowest third area of the state
	0.824 - 0.858	
	0.783 - 0.823	
Dark blue	0.667 - 0.782	

0   25   50   100 Miles
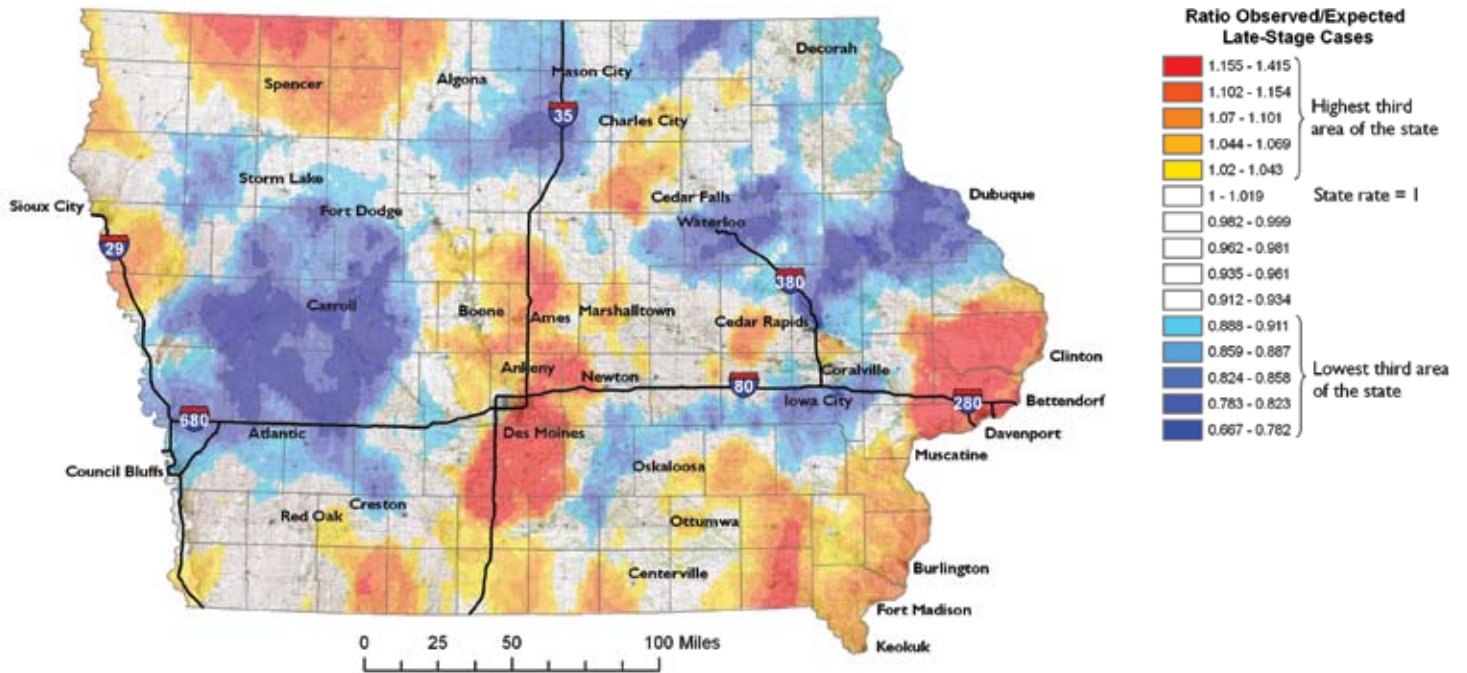
Mortality Rate for Breast Cancer, Iowa, 2000-2005

Ratio Observed/Expected Deaths

Color	Range	Group
Red	1.233 - 1.595	
	1.17 - 1.232	Highest third area of the state
Orange	1.126 - 1.169	
	1.086 - 1.125	
Yellow	1.05 - 1.085	
White	1.022 - 1.049	
	0.998 - 1.021	State rate = 1
	0.97 - 0.997	
	0.943 - 0.969	
	0.915 - 0.942	
Light blue	0.887 - 0.914	
	0.859 - 0.886	Lowest third area of the state
	0.819 - 0.858	
	0.767 - 0.818	
Dark blue	0.579 - 0.766	

0   25   50   100 Miles

Colorectal Cancer

Colorectal cancer is cancer that occurs in the colon and rectum. Colorectal cancer is the second most common cause of cancer deaths in men and women combined. If everyone 50 and older had regular screening tests, almost two-thirds of deaths from this cancer could be avoided.

Age

Colorectal cancer can be diagnosed at any age, but the risk for death increases exponentially with age (Table 3).

Education

Education plays an important role in colorectal cancer mortality rates. Iowans with less than 12 years of education are more likely to die from colorectal cancer than those with more than 12 years of education as shown in Figure 5.

Screening for colorectal cancer is also affected by level of education. Iowans age 50+ who are also college graduates are more likely to have had a blood stool test within the past two years than those with less education.[3] The likelihood an Iowan has ever had a sigmoidoscopy or a colonoscopy also increases with level of education.[3]

Gender

Iowa men are dying from colorectal cancer at rates almost one and a half times that of Iowa women (Table 3).

Figure 5. Mortality Rates for Colorectal Cancer by Education, Sex and Age, Iowa, 2001-2005
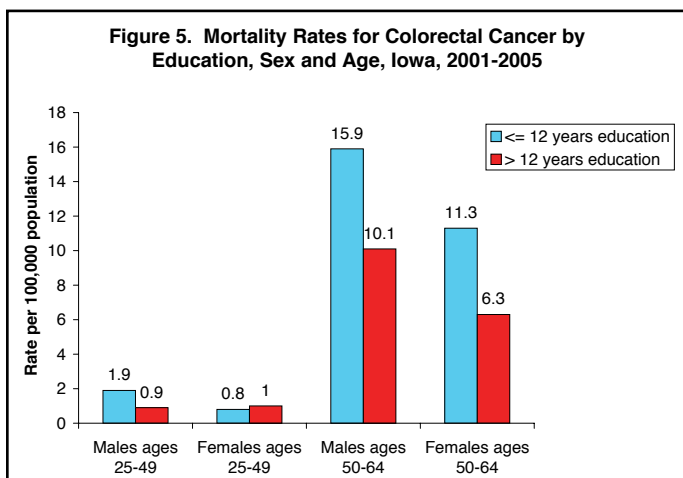
Rates are age-adjusted to the 2000 US population
Source: State Health Registry of Iowa

Race

African Americans are at greater risk of dying from colorectal cancer than are white Iowans.[1] African American men and women suffer from higher rates of colorectal cancer mortality than their white counterparts with the same amount of education. [1]

Table 3. Incidence and Mortality Rates for Colorectal Cancer, Iowa, 2001-2005

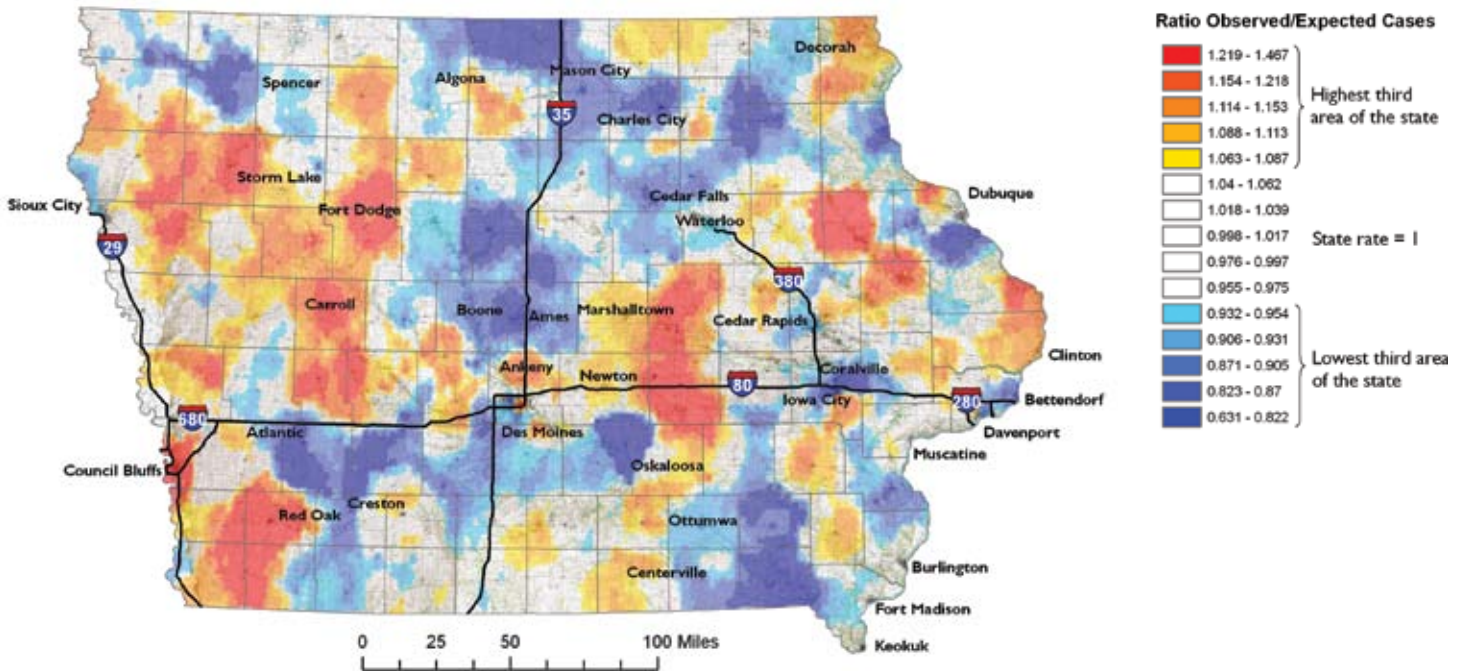| Select Population	Incidence Rate	# of New Cases	Mortality Rate	# of Deaths
Aged <50	6.0	618	1.2	123
Aged 50-64	84.1	2052	22.0	537
Aged 65+	323.8	7267	121.4	2827
Males	67.2	4864	23.7	1696
Females	50.5	5073	16.5	1791
Non-MSA counties	59.9	5478	20.2	1961
MSA counties	55.6	4459	18.7	1526
White	55.4	4309	18.8	1488
African American	65.4	99	22.7	33

Rates are age-adjusted to the 2000 US population
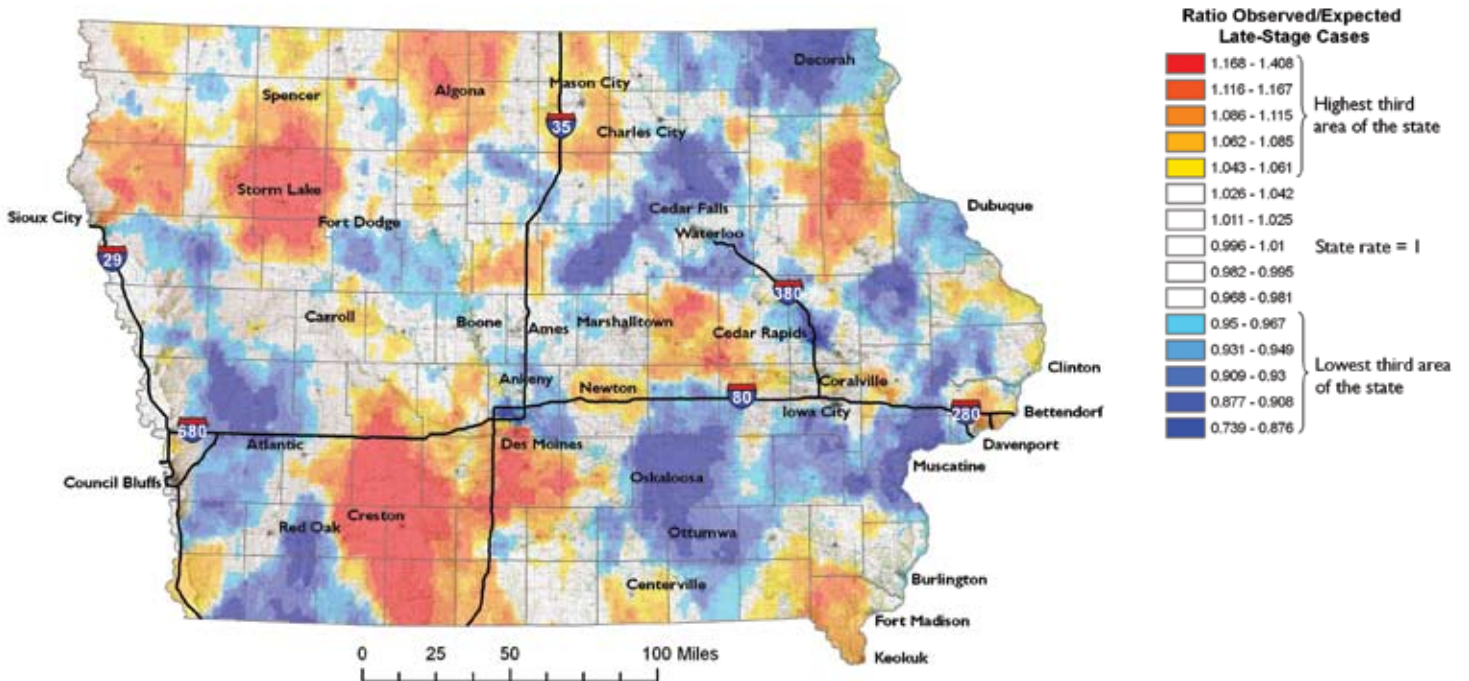*Source: State Health Registry of Iowa*

Geography

High and low pockets of colorectal cancer incidence rates are throughout the state, including a large area of higher than expected incidence in the northwest quadrant of the state, in the rural area to the west of Cedar Rapids, the area surrounding Red Oak in the southwest, and the Des Moines area. Late-stage diagnosis is heavily concentrated in two areas in the state, surrounding the towns of Storm Lake and Creston, with other more rural areas — one directly east of Cedar Falls and Waterloo — experiencing higher than expected rates as well. Higher than expected colorectal cancer mortality rates are found in several areas including western Iowa around Storm Lake, Carroll and Council Bluffs, south central Iowa and also in the rural area east of Waterloo.
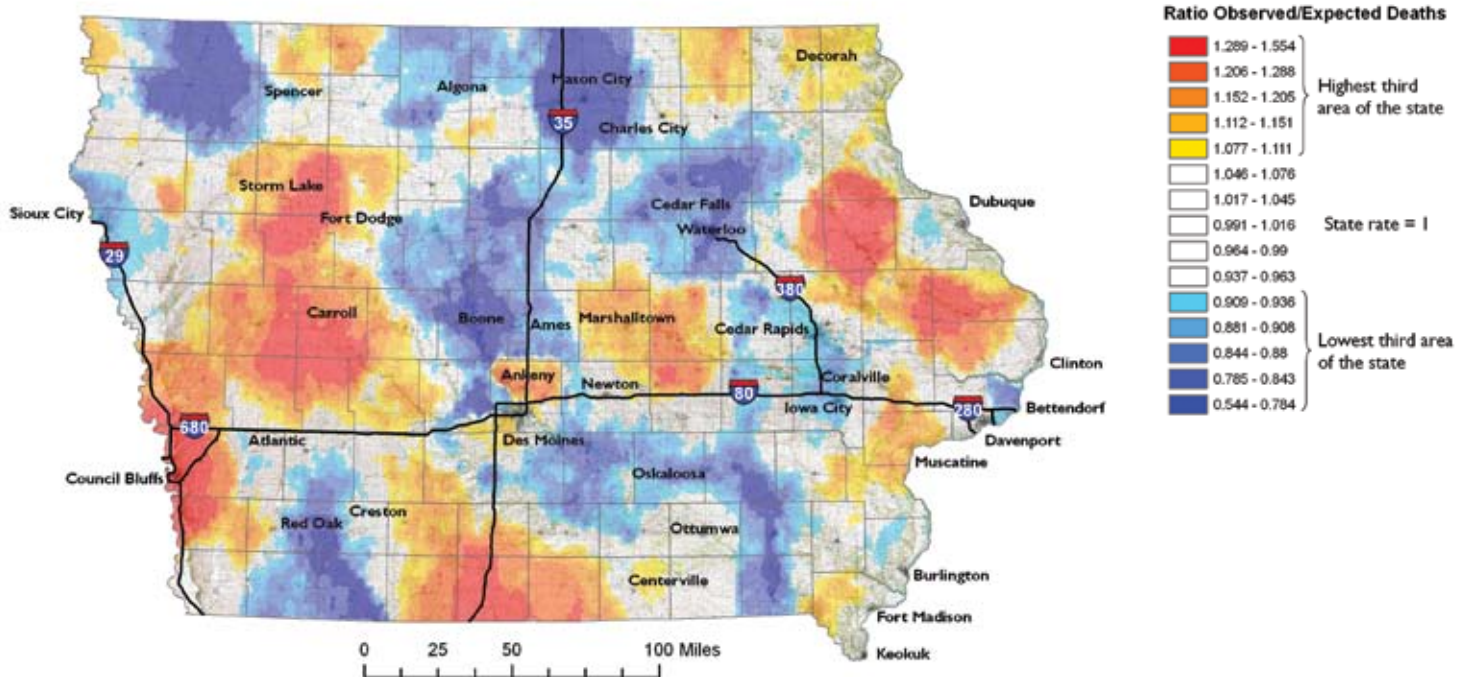
Incidence Rate for Colorectal Cancer, Iowa, 2000-2005

Ratio Observed/Expected Cases

1.219 - 1.467	
1.154 - 1.218	Highest third
1.114 - 1.153	area of the state
1.088 - 1.113	
1.063 - 1.087	
1.04 - 1.062	
1.018 - 1.039	
0.998 - 1.017	State rate = 1
0.976 - 0.997	
0.955 - 0.975	
0.932 - 0.954	
0.906 - 0.931	
0.871 - 0.905	Lowest third area
0.823 - 0.87	of the state
0.631 - 0.822	

Late Stage Rate for Colorectal Cancer, Iowa, 2000-2005

Ratio Observed/Expected Late-Stage Cases

1.168 - 1.408	
1.116 - 1.167	Highest third
1.086 - 1.115	area of the state
1.062 - 1.085	
1.043 - 1.061	
1.026 - 1.042	
1.011 - 1.025	
0.996 - 1.01	State rate = 1
0.982 - 0.995	
0.968 - 0.981	
0.95 - 0.967	
0.931 - 0.949	
0.909 - 0.93	Lowest third area
0.877 - 0.908	of the state
0.739 - 0.876	

Mortality Rate for Colorectal Cancer, Iowa, 2000-2005

Ratio Observed/Expected Deaths

1.289 - 1.554	
1.206 - 1.288	
1.152 - 1.205	Highest third area of the state
1.112 - 1.151	
1.077 - 1.111	
1.046 - 1.076	
1.017 - 1.045	
0.991 - 1.016	State rate = 1
0.964 - 0.99	
0.937 - 0.963	
0.909 - 0.936	
0.881 - 0.908	
0.844 - 0.88	Lowest third area of the state
0.785 - 0.843	
0.544 - 0.784	

Colorectal cancer is the second most common cause of cancer deaths in men and women combined.

Lung Cancer

Lung cancer is the leading cancer killer of Iowa men and women and is usually a result of lifestyle exposures. Lung cancer is a highly preventable disease. Nearly 90% of lung cancers are caused by tobacco use and exposure to secondhand smoke.[4]

Figure 6. Incidence and Mortality Rates for Lung Cancer by Gender and Race, Iowa, 2001-2005
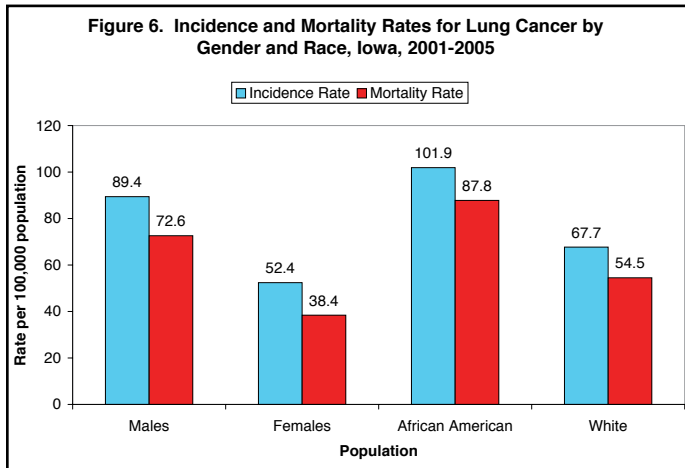
Rates are age-adjusted to the 2000 US population
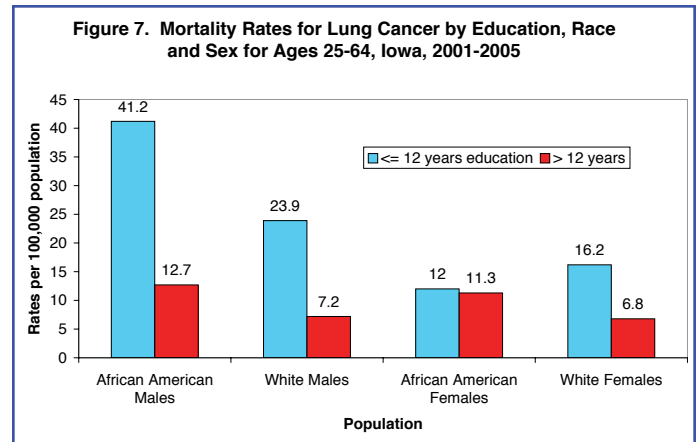*Source: State Health Registry of Iowa*

Age

Lung cancer occurs among all people, but as a result of the accumulation of lifestyle exposures, most frequently in older age groups. Smoking, the largest risk factor for lung cancer, is higher among younger Iowans. The highest rate of smoking is among Iowans age 18-24 and the lowest rates are for those over age 65 (Table 4).

Even though older Iowans are less likely to smoke currently, a lifetime of exposure to risk factors places them at a greater risk for developing and dying from lung cancer than younger Iowans.

Education

Education also plays a role in lung cancer mortality. African American males with less than 12 years of education have the highest rate of mortality from lung cancer as shown in Figure 7. Mortality rates are also high for white males with less than 12 years of education compared to women at all education levels. Smoking rates decrease dramatically as level of education rises. (Table 4).

Figure 7. Mortality Rates for Lung Cancer by Education, Race and Sex for Ages 25-64, Iowa, 2001-2005

Rates are age-adjusted to the 2000 US population
Source: State Health Registry of Iowa

Race/Gender/Income

African American mortality rates from lung cancer are more than 30% higher than that for whites and men die from lung cancer at rates nearly double that of women (Figure 6). Smoking rates in Iowa decrease as an individual's income increases (Table 4).

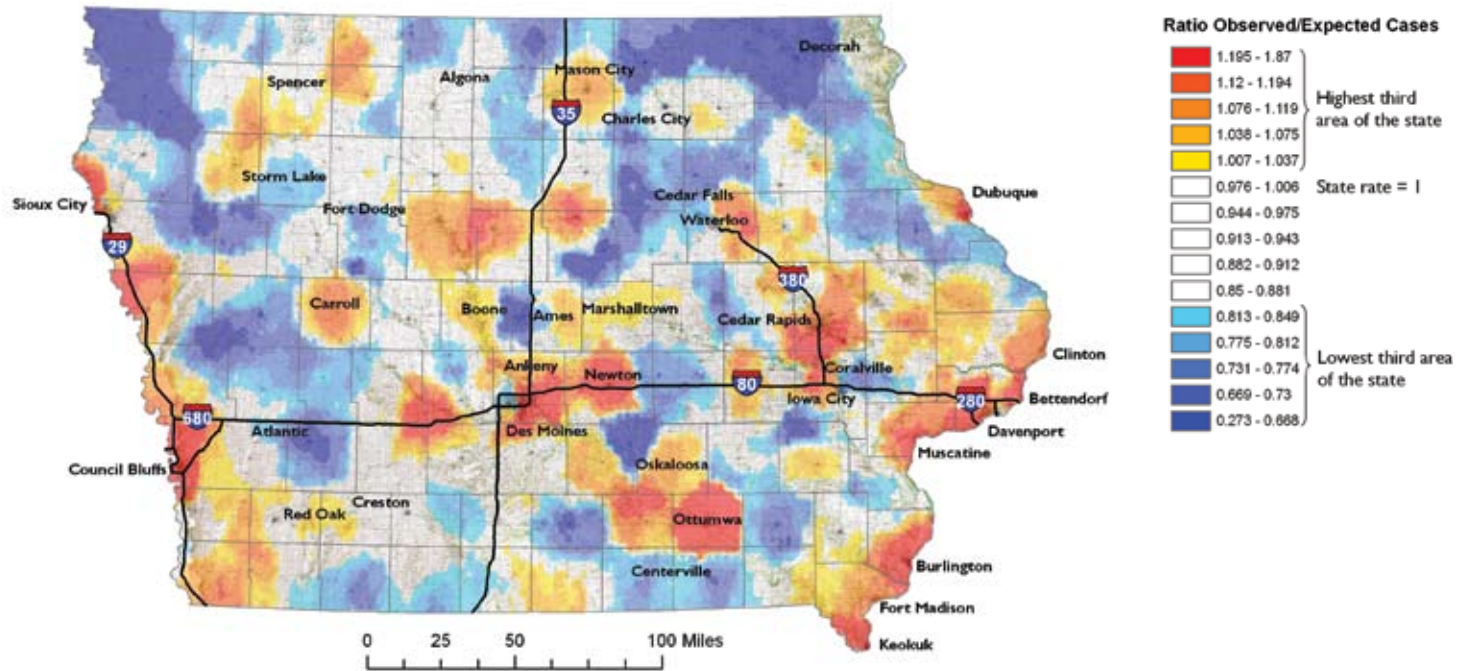| Table 4. Percent of adults who are current smokers, Iowa, 2007	
Select Population	**Percent of Current Smokers**
Males	21.3
Females	18.4
Aged 18-24	26.6
Aged 25-34	24.7
Aged 35-44	23.6
Aged 45-54	23.1
Aged 55-64	15.6
Aged 65+	7.5
Income Less than $15,000	31.8
Income $15,000 – 24,999	25.7
Income $25,000 – 34,999	25.7
Income $35,000 – 49,999	20.9
Income $50,000 +	16.4
Education Less than H.S.	33.6
H.S. or G.E.D.	23.7
Some post-H.S.	21.1
College graduate	9.4

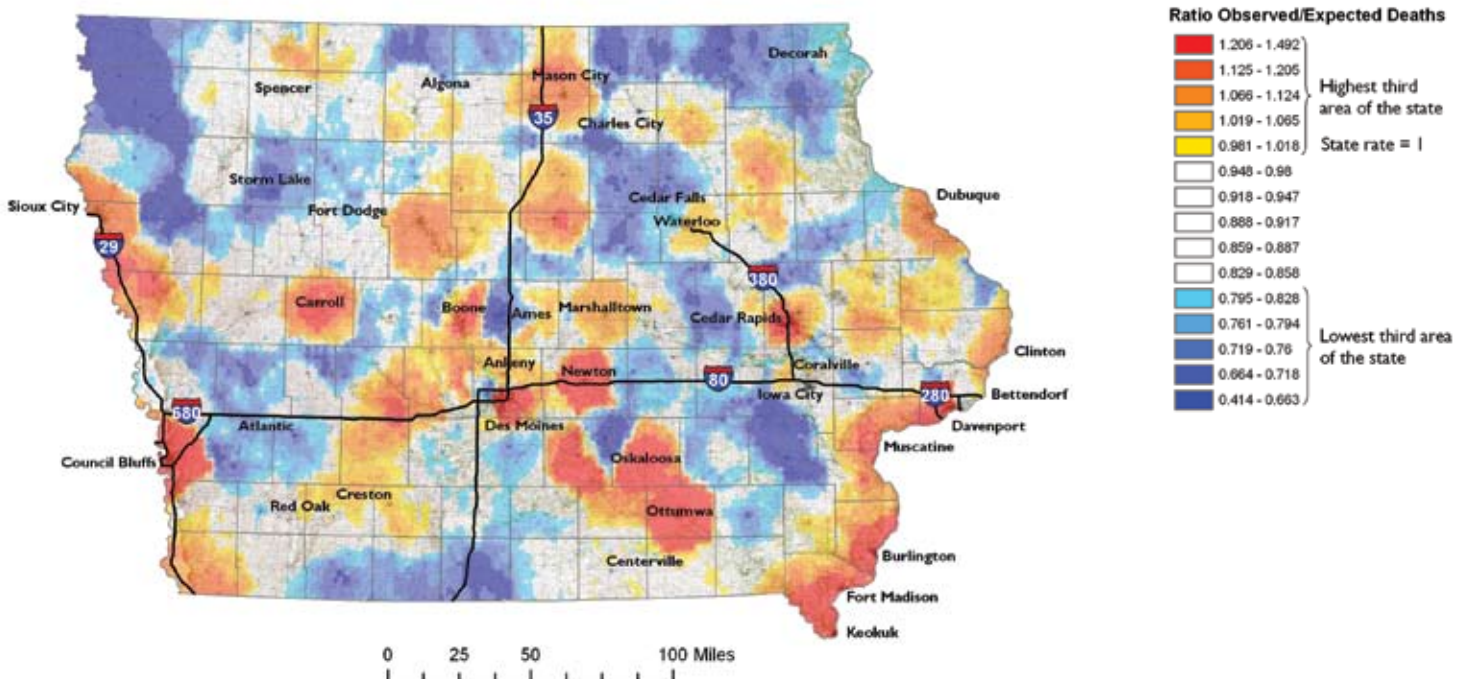*Source: Behavioral Risk Factor Surveillance Survey*

Geography

Lung cancer incidence rates and mortality rates show some similarity in the way they are distributed geographically, with tight pockets of both in Des Moines, Newton, Council Bluffs, Sioux City, Cedar Rapids, Ottumwa, Carroll and Mason City, as well as along the south eastern border of the state.

Incidence Rate for Lung Cancer, Iowa, 2000-2005

Ratio Observed/Expected Cases

1.195 - 1.87		
1.12 - 1.194		Highest third
1.076 - 1.119		area of the state
1.038 - 1.075		
1.007 - 1.037		
0.976 - 1.006	State rate = 1
0.944 - 0.975	
0.913 - 0.943	
0.882 - 0.912	
0.85 - 0.881	
0.813 - 0.849	
0.775 - 0.812	
0.731 - 0.774	Lowest third area
0.669 - 0.73	of the state
0.273 - 0.668	

0   25   50   100 Miles

Mortality Rate for Lung Cancer, Iowa, 2000-2005

Ratio Observed/Expected Deaths

|		
1.206 - 1.492		
1.125 - 1.205		Highest third
1.066 - 1.124		area of the state
1.019 - 1.065		
0.981 - 1.018	State rate = 1
0.948 - 0.98	
0.918 - 0.947	
0.888 - 0.917	
0.859 - 0.887	
0.829 - 0.858	
0.795 - 0.828	
0.761 - 0.794	
0.719 - 0.76	Lowest third area
0.664 - 0.718	of the state
0.414 - 0.663	

0   25   50   100 Miles

Prostate Cancer

Prostate cancer is the most commonly diagnosed cancer in men and the second leading cause of cancer deaths. While there are no certain methods of preventing prostate cancer, men may lower their risk by adapting universal cancer prevention lifestyle recommendations, such as decreasing obesity, participating in regular physical activity, not using tobacco products, drinking alcohol in moderation, and increasing consumption of fruits, vegetables and whole grains.

The Prostate Specific Antigen (PSA) is a screening test for prostate cancer. Using the PSA test to screen men for prostate cancer is controversial because it is not yet known if this test actually saves lives. When PSA screening began, prostate cancer mortality rates declined. However, it is not clear if the benefits of PSA screening outweigh the risks of follow-up diagnostic tests and cancer treatments.

Age

Prostate cancer increases with age, with 70% of cases between 2001 and 2005 occuring in males 65 years of age and older.[1]

Figure 8. Mortality Rates for Prostate Cancer by Race and Education, Iowa, 2001-2005
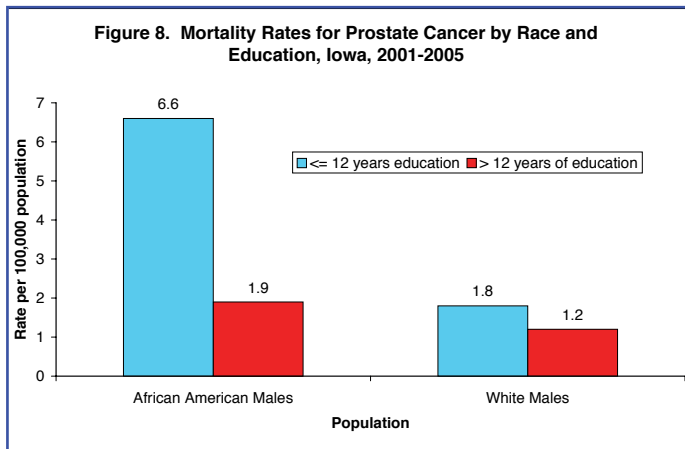
Rates are age-adjusted to the 2000 US population
Source: State Health Registry of Iowa

Education

Education is a significant factor in prostate cancer mortality. African American men who have less than 12 years of education have mortality rates 3 times that of white men regardless of education and of African American men with more than 12 years education. [1]

Figure 9. Incidence and Mortality Rates for Prostate Cancer by Age, Iowa, 2001-2005
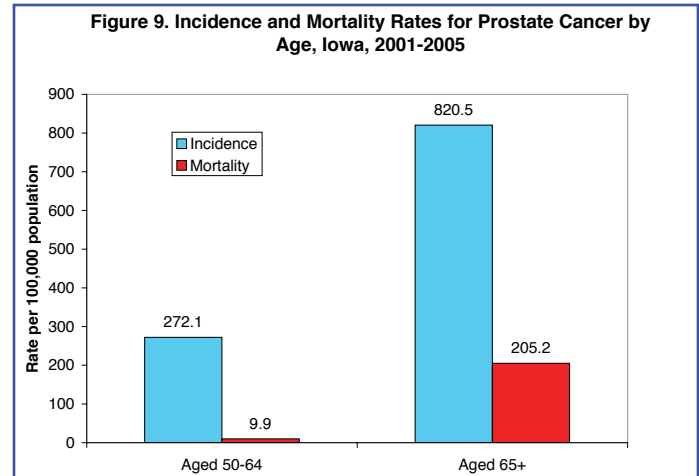
Rates are age-adjusted to the 2000 US population
Source: State Health Registry of Iowa

Race

Mortality rates are more than twice as high for African American males as those of white males (Table 5).

Income

The likelihood that a male has had a PSA test within the past two years increases with his level of income.[3]

Table 5. Incidence and Mortality Rates for Prostate Cancer, Iowa, 2001-2005

| Select Population	Incidence Rate	# of New Cases	Mortality Rate	# of Deaths
Aged 50-64	272.1	3265	9.9	119
Aged 65+	820.5	7301	205.2	1791
Non-MSA counties	149.8	5808	27.8	1095
MSA counties	143.8	4973	27.1	819
White	136.3	4567	26.6	786
African American	210.0	151	62.8	33

Rates are age-adjusted to the 2000 US population
Source: State Health Registry of Iowa
MSA: Metropolitan Statistical Area
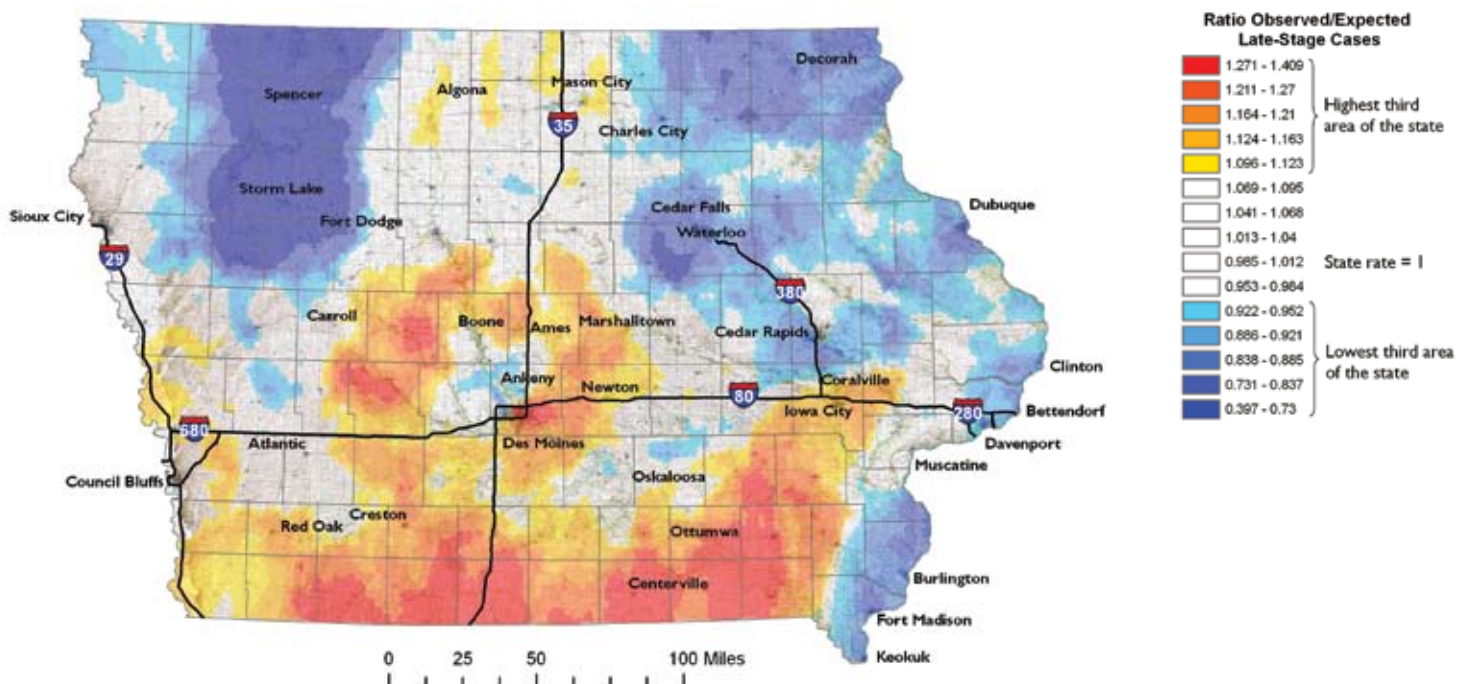
Geographic Location

The geographic pattern for prostate cancer incidence is well-defined, with a very high incidence rate surrounding the town of Spencer in the northwest. The pattern for late state diagnosis is much different — with more cancers diagnosed in late stage in central Iowa around Des Moines, as well as in the south. The mortality pattern is again different, with high rates directly west and northeast of Des Moines and in the rural area between Sioux City and Council Bluffs, including the town of Carroll.
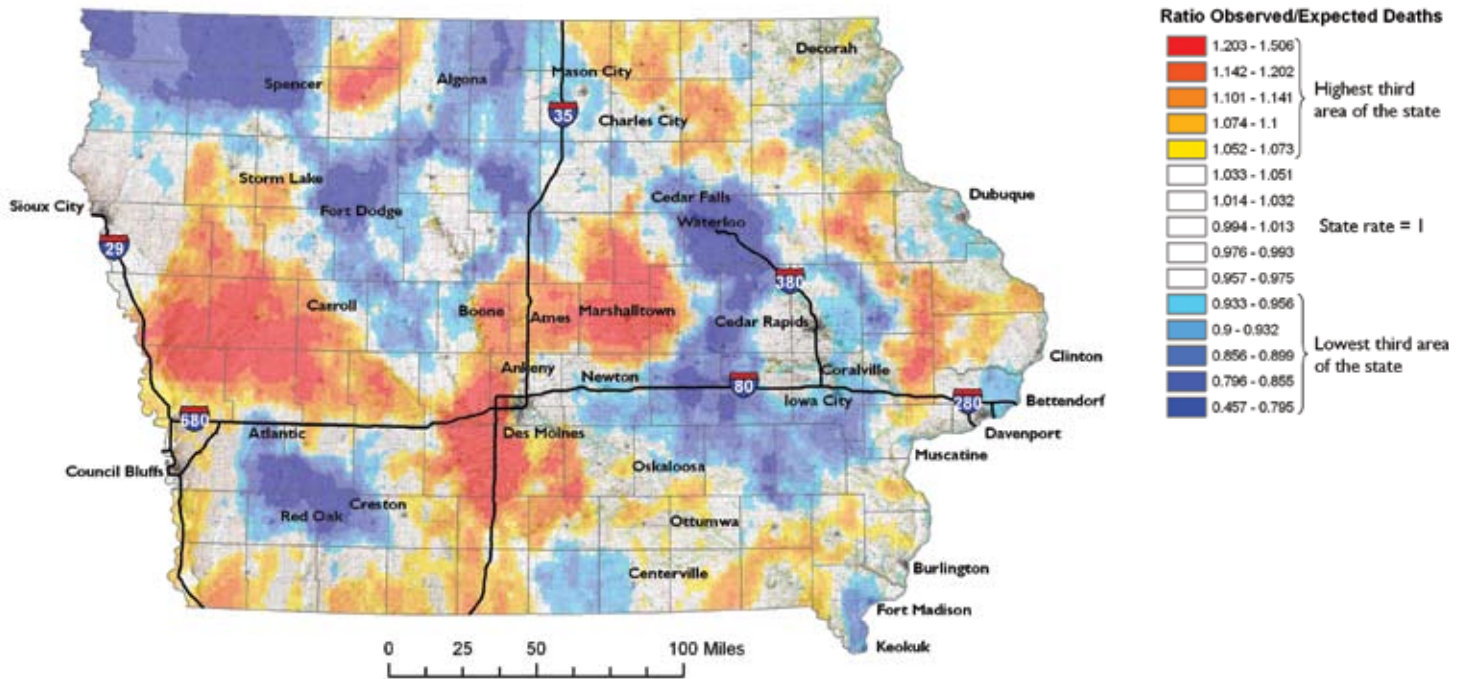
Incidence Rate for Prostate Cancer, Iowa, 2000-2005
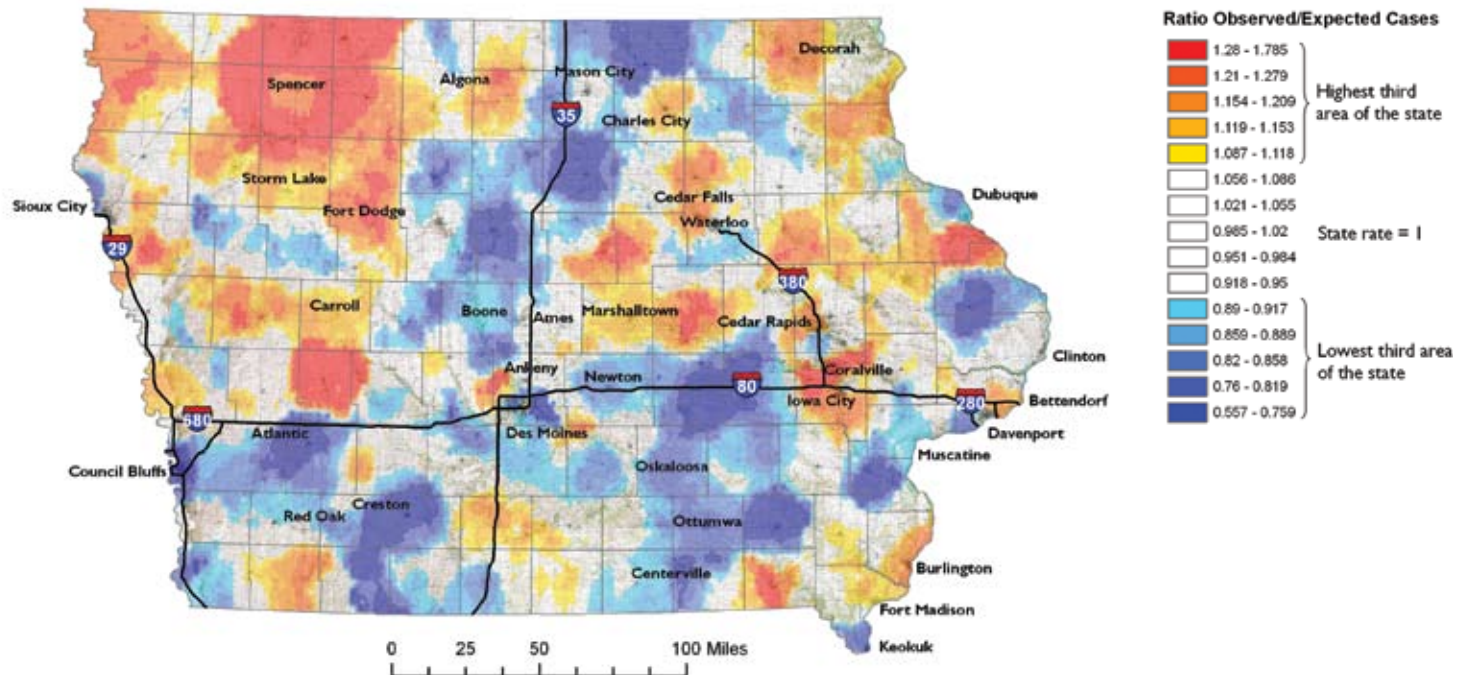
Late Stage Rate for Prostate Cancer, Iowa, 2000-2005

Mortality Rate for Prostate Cancer, Iowa, 2000-2005

Ratio Observed/Expected Deaths

Color	Range	
	1.203 - 1.506	Highest third area of the state
	1.142 - 1.202	
	1.101 - 1.141	
	1.074 - 1.1	
	1.052 - 1.073	
	1.033 - 1.051	
	1.014 - 1.032	
	0.994 - 1.013	State rate = 1
	0.976 - 0.993	
	0.957 - 0.975	
	0.933 - 0.956	
	0.9 - 0.932	Lowest third area of the state
	0.856 - 0.899	
	0.796 - 0.855	
	0.457 - 0.795	

0   25   50   100 Miles

*Prostate cancer is the most
commonly diagnosed cancer in men
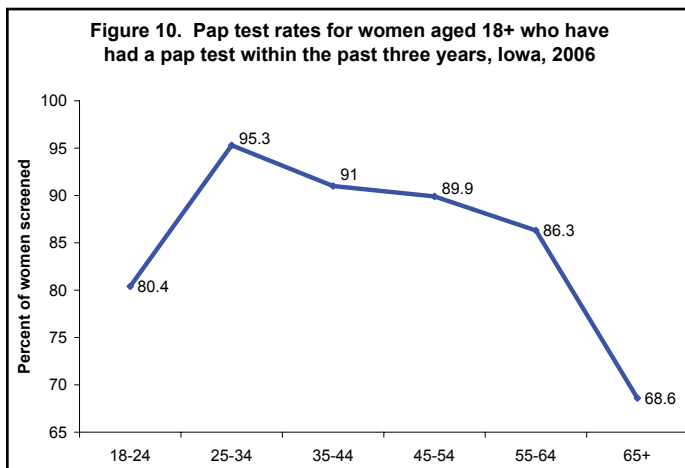and the second leading cause of cancer deaths.*

Cervical Cancer

Cervical cancer is nearly 100% curable if detected through screening and treated early. The Pap test (Papanicolaou smear) is the best method of detecting cervical cancer at an early, treatable stage. The primary cause of cervical cancer is infection with certain types of human papillomavirus (HPV), which are extremely common, although the majority of infections do not progress to cervical cancer. Vaccines have been developed against certain types of the HPV virus.

There are several known risk factors for cervical cancer that are modifiable factors, including: 1) having sex at an early age; 2) having multiple sexual partners; and 3) having a sexual partner who has had sex with multiple partners. Other risk factors include: 1) immunosuppressive disorders such as HIV/AIDS; and 2) failure to receive regular Pap test screening.

Age

Cervical cancer rates are higher in Iowa among older women; however, cervical cancer intraepithelial neoplasia (CIN)—the precursor lesion to cervical cancer—most often occurs in younger women.[4] Figure 10 describes cervical cancer screening rates peaking with women age 25-34 with a dramatic drop-off after the age of 64.

Figure 10. Pap test rates for women aged 18+ who have had a pap test within the past three years, Iowa, 2006

Source: Behavioral Risk Factor Surveillance Survey

Table 6 . Incidence and Mortality Rates for Cervical Cancer, Iowa, 2001-2005

Select Population	Incidence Rate	# of New Cases	Mortality Rate	# of Deaths
Aged <40	4.6	164	0.4	14
Aged 40-64	11.2	260	4.4	103
Aged 65+	10.1	128	5.5	72
Non-MSA counties	7.3	259	2.3	94
MSA counties	7.2	293	2.2	95
White	7.2	523	2.2	91
African American	9.2	10	N/A	N/A

Rates are age-adjusted to the 2000 US population
Source: State Health Registry of Iowa
MSA: Metropolitan Statistical Area

Education/Income

Cervical cancer screening rates in Iowa increase significantly with the level of a women's educational achievement (Table 7). Women with less than a high school education report screening rates 30 percent lower than those with a college degree. As with education, in Iowa, as a woman's income raises so does the rate of cervical cancer screening (Table 7).

Table 7. Percent of women aged 18+ who have had a pap test within the past three year, Iowa, 2006

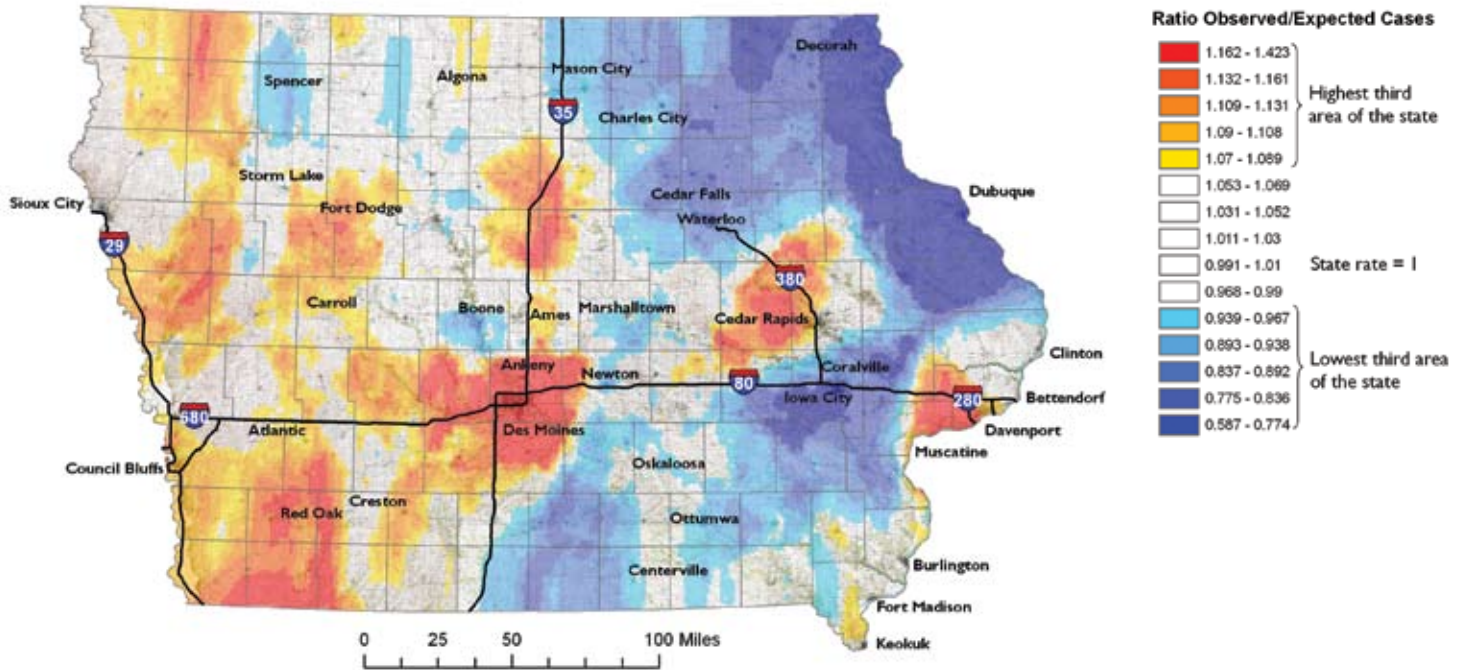| Select Population	Percent Screened
Aged 18-24	80.4
Aged 25-34	95.3
Aged 35-44	91.0
Aged 45-54	89.9
Aged 55-64	86.3
Aged 65+	68.6
Income Less than $15,000	74.4
Income $15,000 – 24,999	79.2
Income $25,000 – 34,999	86.3
Income $35,000 – 49,999	86.7
Income $50,000 +	92.8
Education Less than H.S.	63.8
H.S. or G.E.D.	79.6
Some post-H.S.	89.6
College graduate	93.9

Source: Behavioral Risk Factor Surveillance Survey

Geographic Location

Cervical cancer incidence is high in and around the metropolitan areas of Des Moines, Cedar Rapids, Muscatine, Davenport and Red Oak and is generally higher in the western part of the state than in the east. Maps of late-stage diagnosis and mortality are unavailable due to small numbers of individuals in these categories.

Incidence Rate for Cervical Cancer, Iowa, 2000-2005

Ratio Observed/Expected Cases

Color	Range	Category
red	1.162 - 1.423	Highest third area of the state
	1.132 - 1.161	
	1.109 - 1.131	
	1.09 - 1.108	
yellow	1.07 - 1.089	
	1.053 - 1.069	
	1.031 - 1.052	
	1.011 - 1.03	
	0.991 - 1.01	State rate = 1
	0.968 - 0.99	
	0.939 - 0.967	Lowest third area of the state
	0.893 - 0.938	
	0.837 - 0.892	
	0.775 - 0.836	
	0.587 - 0.774	

Cervical cancer is nearly 100% curable
if detected through screening and treated early.

Conclusion

Many barriers exist for Iowans to prevent, detect and if needed, treat cancer in a timely and effective manner. Barriers to timely access to care may be the result of physical, social or financial barriers or the result of health policy and current health care delivery. Great opportunity exists to reduce the burden of cancer through positive health practices such as smoking cessation, physical exercise, healthful dietary habits, moderate alcohol consumption and early detection. Through receiving recommended screening tests and regular health checkups, one can improve cancer survival.[4] Unfortunately these messages and screening opportunities are not available equally to all Iowans.

Some of Iowa's diverse populations are far from achieving many of the Healthy Iowans 2010 goals that appear realistic for Iowa's white majority population. In these cases, specific population groups would require greater improvement rates than the majority population in order to achieve the statewide objective. In many cases, statewide rates mask disparities among specific populations within Iowa including racial, ethnic, economic and educational groups. High overall levels of health in a population do not necessarily lead to low levels of disparities, and so indicators of both disparities and average health contribute important information to assessments of population health.[5]

This companion guide to *Reducing the Burden of Cancer in Iowa: A Strategic Plan for 2006-2011* is intended to shine a spotlight on the disparities that may not be apparent in statewide data. It is critical that any cancer control planning efforts take into account special populations that may be suffering disproportionately from the cancer burden in Iowa.

As an individual you can:
- Become involved in state cancer control efforts through the Iowa Consortium for Comprehensive Cancer Control.
- Volunteer for an organization involved in cancer control. Visit www.canceriowa.org for a list of organizations in your community.
- Encourage cancer control policies that benefit all Iowans.
- Be up-to-date on your own cancer screenings. Discuss with your doctor the screenings you should be participating in.
- Encourage your friends and family to be screened.
- Promote cancer research in Iowa.
- Consider participating in cancer-related clinical trials.
- Educate yourself and others about clinical trial opportunities.

As an organization you can:
- Use *Reducing the Burden of Cancer in Iowa: A Strategic Plan for 2006-2011* along with this companion disparities report to guide your cancer control efforts.
- Join the statewide fight, become a member of the Iowa Consortium for Comprehensive Cancer Control, www.canceriowa.org.
- Review your health care plan to ensure all employees may participate in and/or have insurance that covers regular cancer screening, treatment (if necessary) and clinical trials.
- Encourage all your employees to practice good cancer prevention techniques.
- Encourage other organizations to join you in the fight against cancer and cancer-related disparities.

While this report provides details regarding cancer health disparities it also brings up new and unanswered questions…

Why are African American men more likely to die from prostate cancer?

How can we deliver health care to those who lack access?

What screening programs best reach underserved populations?

How do we decrease cancer risk factor behaviors for all populations?

Why are African American women less likely to be diagnosed with breast cancer than white women, but more likely to die from the disease?

Why do geographic differences occur in cancer incidence, mortality and late-stage diagnosis?

While these important questions remain and many others left unanswered we must continue to review the data, evaluate programs and remain committed to ensuring every Iowan has an equal chance in this fight against cancer.

Great opportunity exists to reduce the burden of cancer through positive health practices such as smoking cessation, physical exercise, healthful dietary habits, moderate alcohol consumption and early detection.

Recommendations

The potential for reducing cancer incidence through primary prevention exists. Lifestyle, occupational, genetic, and environmental factors – individually or in combination – can increase a person's risk of developing cancer.

The recommendations from this report in conjunction with *Reducing the Burden of Cancer in Iowa: A Strategic Plan for 2006-2011* can be used to help all of Iowa's diverse population groups achieve the best possible cancer outcomes. Recommendations for this report have been gathered from *Reducing the Burden of Cancer in Iowa, Healthy Iowans 2010, The Face of Cancer in Iowa* and the National Cancer Institute's Center to Reduce Cancer Health Disparities.

Education

- Develop Iowa-specific companion materials for Iowans recently diagnosed with cancer that can be used along with nationally developed clinical trials education materials. The companion materials should provide basic, factual information in a low-literacy format. Materials should be distributed free-of-charge to patients and providers in Iowa. *Reducing the Burden of Cancer in Iowa – Strategy A, page 48*
- Support public workshops and focused dissemination efforts to address the many needs related to health disparities.
- Develop and implement plans to educate health care providers about resources available to underserved cancer patients regarding screening/early detection and treatment.
- Develop and work with others to implement innovative, educationally and culturally appropriate approaches for disseminating information on research results to underserved populations. *National Cancer Institute's Strategic Plan*

Geographic Location

- Assess the geographic distribution of health care providers trained to perform and interpret early detection screening services for cancer in order to identify utilization and access patterns that will ultimately increase the percentage of Iowans that receive screening according to the recommended screening guidelines. *Reducing the Burden of Cancer in Iowa – Strategy A, page 31*

- Coordinate with existing agencies to provide transportation for cancer patients to/from cancer treatment facilities. *Reducing the Burden of Cancer in Iowa – Strategy, C page 37*

Income

- Decrease the financial barriers that restrict Iowans' access to early detection cancer screening through increased public and provider knowledge of insurance plan coverage options and other non-traditional resources, including free services. *Reducing the Burden of Cancer in Iowa – Strategy B, page 32*
- Identify alternative financial options and other resources available for cancer care for uninsured or low-income cancer patients. *Reducing the Burden of Cancer in Iowa – Strategy D, page 38*

Race

- Increase the ability of health care providers to deliver culturally sensitive care in the languages spoken by Iowa's diverse population. *Reducing the Burden of Cancer in Iowa– Strategy E, page 33*

Cross Cutting Strategies

Previous recommendations focused on specific populations. The following are cross-cutting strategies that may be used across populations.

Collaboration

- Establish effective and mutually beneficial collaborations and partnerships between cancer centers, academic institutions, community-based organizations, federal agencies, students, and community members with the common goal of reducing cancer health disparities.
- Form a collaborative with Cancer Centers to promote training on cancer health disparities issues for healthcare providers and researchers.
- Team with health disparity experts, cancer advocacy groups, and cancer education specialists to disseminate consistent, current, and accurate information.
- Partner with the minority and local media to reach their constituents with timely and accurate health messages.

- Identify gaps in treatment options and resources for underserved cancer patients. Work with a statewide collaborative to close the gaps in treatment and resource options. *Reducing the Burden of Cancer in Iowa – Strategy A, page 36*

Communications Systems-

- Educate health care providers on the possible language barriers for non-English speaking patients or for those patients that English is a second language:
  – Appointments may not be made due to difficulty in communicating dates and other necessary information.
  – Health histories may be miscommunicated, leading to delay or inappropriate diagnosis and/or treatments.
  – Patients may not comply with treatment plans or test procedures and may not understand test results.
  – Provide culturally specific public health education on cancer risk factors (*The Face of Cancer in Iowa*).
- Tools to disseminate to providers: *Pocket Guide Promoting Cultural Competence in Communications with Cancer Patients, Intercultural Cancer Council*

Community Engagement

- Provide the knowledge base for and develop interventions to enhance the integration of cancer services for underserved populations. Potential solutions include patient navigation programs. "Patient navigation" in cancer care refers to the assistance offered to patients, survivors, families, and caregivers to help them access and chart a course through the healthcare system. Navigators are experienced lay people, social workers, nurses, and others from local communities who are able to communicate credibly with patients. They work with vulnerable or disadvantaged people to help them obtain accurate information on diagnosis and treatment procedures, access to hospitals and clinics, guidance on financial assistance, and help with tracking their records and obtaining prescriptions. In some cases, they also arrange for language translation, travel, social support, or religious counseling.
- When programs are successful, promote sharing of specific examples of project activities across the state of Iowa that enable the community to take on greater leadership in addressing cancer health disparities.

- Engage community members to assume greater leadership in addressing cancer health disparities. Community members who are informed and engaged in addressing disparities are more likely to create sustainable and successful outcomes.
- Work with communities to develop interventions targeted to the specific needs of underserved populations. *NCI Strategic Objective*
- Foster the participation of community and academic partners to facilitate the development of education, research, and training programs that will increase access to and use of cancer prevention interventions such as smoking cessation, healthy eating and physical activity and the early detection, diagnosis, and treatment of cancer. *NCI Strategic Objective*
- Work with community members, leaders, and health-care providers to implement clinical, correlative, and community research for populations known to bear heavy burdens of cancer and work to ensure broader community participation in research clinical trials for patients and healthcare providers. *NCI Strategic Objective.*

Policy

- Examine the role of health policy in reducing and eliminating cancer health disparities. Strong evidence-based health policies can provide a critical link in helping to understand and overcome cancer health disparities. *NCI Strategic Objective*
- Examine existing or develop new health policy models to determine how they may be adopted to address cancer health disparities related to gaps in Iowa, translate research findings into policy, and further engage local, state, and federal policy makers. *NCI Strategic Objective.*
- Advocate increasing resources for early detection cancer screenings at entities that provide services at little or no cost to the service recipient. *Reducing the Burden of Cancer in Iowa – Strategy C, page 32*
- Encourage insurance carriers to provide coverage through insurance plans for clinical cancer trial participation and cover costs of routine patient care when enrolled in a clinical cancer trial. *Reducing the Burden of Cancer in Iowa – Strategy A, page 45*

- Advocate via a variety of community-based coalitions and interest groups for improved access to regular cancer screening for Iowans who are less likely to be screened, particularly those living in rural areas, with disabilities and/or mobility limitations, with low incomes, and within a minority of population. *2-1.3 Action Step – Healthy Iowans 2010*
- Advocate for increased public funding for cancer early detection.
- Advocate for policy changes by insurers and employers to assure coverage for cancer clinical trials participation and to prohibit any form of genetic discrimination.

Sustainability

- Seek funding to fully implement the state cancer plan.

Technology

- Examine the current technologies used to disseminate cancer control information and assess if certain populations are not benefiting from the use of latest technology.

- Ensure the latest in diagnostic and treatment technologies are accessible to all Iowans.

Training

- Work through the ICCCC to develop a cadre of researchers and clinicians prepared to effectively address cancer health disparities.
- Provide culturally specific training on cancer prevention skills. *The Face of Cancer in Iowa*
- Provide culturally sensitive and appropriate screening services. *The Face of Cancer in Iowa*
- Incorporate innovative strategies to increase the number of minority and underserved investigators in cancer research. Potential solutions include developing curricula, mentoring and providing training opportunities for researchers to address challenges and enhance strategies to increase the recruitment, retention, and promotion of minority and underserved investigators in cancer health disparities research.

For more information on cancer health disparities and cancer control in Iowa, please contact 1-800-237-1225. The full report may be accessed at www.canceriowa.org.

Citations/References

1. Iowa Cancer Registry, http://www.public-health.uiowa.edu/shri/Index.html.
2. United States Census 2000 data, www.census.gov.
3. Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data.* Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2006.
4. Comprehensive Cancer Control Study Committee. *The Face of Cancer In Iowa.* Des Moines, Iowa: Iowa Department of Public Health, 2002.
5. Byrd D, Friedsam D, Remington P. *Healthiest Wisconsin 2010 and health disparities: how do the state's goals relate to Wisconsin's minority populations?* Wisconsin Public Health & Public Policy Institute. 2005: 6(4).
6. National Cancer Institute's State Cancer Profiles, http://statecancerprofiles.cancer.gov/.

Appendix A
Selected Cancer Data Sources

Behavioral Risk Factor Surveillance System (BRFSS), www.idph.state.ia.us/brfss/

Center to Reduce Cancer Health Disparities, http://crchd.cancer.gov/

Intercultural Cancer Council, www.iccnetwork.org

Iowa Cancer Registry, www.public-health.uiowa.edu/shri/

Iowa Center on Health Disparities, http://iowahealthdisparities.org/data.php

ICCCC Web Portal, www.canceriowa.org

Iowa Comprehensive Cancer Control Program, http://www.idph.state.ia.us/hpcdp/comp_cancer_control.asp

IDPH Breast and Cervical Cancer Program: Care for Yourself, http://www.idph.state.ia.us/careforyourself/default.asp

National Cancer Institute's State Cancer Profiles, http://statecancerprofiles.cancer.gov

Appendix B
Cancer Mapping Methodology

All rates are indirectly standardized by age and sex when appropriate, and smoothed using adaptive spatial filtering – a method that uses a grid of points across the study area and calculates rates for each grid point by pulling in observations until a statistically reliable rate can be calculated. Each rate is based on the closest 50 expected cases on a grid that is densified in urban areas to increase geographic detail. Red areas indicate higher rates than expected and blue areas indicate lower rates than expected, given the statewide rate. The highest and lowest third of the state are colored, while no color is shown for the middle third.

Data Sources: Cancer incidence data from the State Health Registry of Iowa. Cancer mortality data from the Bureau of Vital Statistics at the Iowa Department of Public Health. 1:100,000 Digital Raster Graphic from the Iowa Geographic Image Map Server hosted by Iowa State University. County borders, incorporated area locations, and interstate highways from the Natural Resources GIS Library hosted by the Iowa Department of Natural Resources and the US Geological Survey.

Maps were created collaboratively by Kirsten Beyer, Zunqiu Chen, David Haynes, Gerard Rushton, and Chetan Tiwari at the University of Iowa Department of Geography, June 2008. The preparation of these maps was made possible by cooperative agreement #U58DP000794-01 from the Centers for Disease Control and Prevention through the Iowa Department of Public Health Comprehensive Cancer Control Program.

Additional maps can be found at the following URL for breast, cervical, colorectal, lung, and prostate cancer, as well as non-Hodgkin's lymphoma: http://www.uiowa.edu/iowacancermaps/.

Iowa Department of Public Health
Promoting and protecting the health of Iowans

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